

IN THE CLAIMS:

Please amend the Claims so as to read as follows:

1. (Cancelled, without prejudice)
2. (Cancelled, without prejudice)
3. (Cancelled, without prejudice)
4. (Cancelled, without prejudice)
5. (Cancelled, without prejudice)
6. (Cancelled, without prejudice)
7. (Cancelled, without prejudice)
8. (Cancelled, without prejudice)
9. (Cancelled, without prejudice)
10. (Cancelled, without prejudice)
11. (Cancelled, without prejudice)
12. (Cancelled, without prejudice)

13. (Cancelled, without prejudice)

14. (Cancelled, without prejudice)

15. (Cancelled, without prejudice)

16. (Cancelled, without prejudice)

17. (New) A liquid crystal display device comprising:

a first insulating substrate;

a plurality of mutually parallel scanning signal lines and a plurality of mutually parallel data signal lines, said plurality of scanning signal lines and said plurality of data signal lines being disposed perpendicularly relative to one another on a surface of said first insulating substrate so as to form a matrix-like array of intersections at each of which one of said plurality of scanning signal lines and one of said plurality of data signal lines cross;

a plurality of pixel electrodes, one of said plurality of pixel electrodes being located at each said intersection and each said pixel electrode being electrically connected to the scanning signal line and the data signal line forming said intersection by a transistor having its gate electrically connected to the scanning signal line, its source electrically connected to the data signal line and its drain electrically connected to the pixel electrode;

a second transparent insulating substrate disposed in spaced opposing relation to said first insulating substrate;
a transparent counter electrode, said transparent counter electrode being located on the surface of said second transparent insulating substrate facing said first insulating substrate opposite said plurality of pixel electrodes; and
a display medium layer sandwiched between said first and second insulating substrates, said display medium layer being light transmitting or not light transmitting in the volumes located between each said pixel electrode and said counter electrode according to the electrical potential difference applied across the display medium layer in each said volume;

further characterized in that:

said plurality of data signal lines consists of recurrently formed groupings of first, second, and third types of data signal lines, each said data signal line type having an open end, said first type of data signal line comprising electrical wiring used for data signal entry and defining a first diode of a first polarity located in spaced relation to its open end;

said second type of data signal line comprising electrical wiring used for data entry and defining a second diode having a second polarity opposite to said first polarity located in spaced relation to its open end;
and

said third type of data signal line comprising only electrical wiring used for data entry;

said data signal lines are so formed as to permit a short-circuiting bar for supplying testing voltages to be put in contact with the data signal lines at portions thereof spaced from the open ends thereof by a distance smaller than the smaller of the distances that said first and second diodes are spaced from the open ends of the first and second type data signal lines respectively; and

a variable voltage supply is connected to said transparent counter electrode for selectively supplying preselected voltages to said counter electrode according to said testing voltages applied to the data signal lines while scanning signals are being sequentially applied to said scanning signal lines such that said display medium layer is light transmitting only in the volume between the ones of said pixel electrodes associated with one type of said data signal lines and said counter electrode when a selected one of said testing voltages is applied to said display lines by said short-circuiting bar in the absence of a short circuit between said pixel electrodes.

18. (New) A liquid crystal display device as claimed in claim 17,

wherein the data signal lines are so formed as to permit a short-circuiting bar for supplying testing voltages to be put in contact with the data signal lines at portions thereof farther from the open ends thereof than the largest of the distances said first diode or said second diode is spaced from the open end of its associated data signal line.

19. (New) A liquid crystal display device comprising:

a first insulating substrate;

a plurality of mutually parallel scanning signal lines and a plurality of mutually parallel data signal lines, said plurality of scanning signal lines and said plurality of data signal lines being disposed perpendicularly relative to one another on a surface of said first insulating substrate so as to form a matrix-like array of intersections at each of which one of said plurality of scanning signal lines and one of said plurality of data signal lines cross;

a plurality of pixel electrodes, one of said plurality of pixel electrodes being located at each said intersection and each said pixel electrode being electrically connected to the scanning signal line and the data signal line forming said intersection by a transistor having its gate electrically connected to the scanning signal line, its source electrically connected to the data signal line and its drain electrically connected to the pixel electrode;

a second transparent insulating substrate disposed in spaced opposing relation to said first insulating substrate;

a transparent counter electrode, said transparent counter electrode being located on the surface of said second transparent insulating substrate facing said first insulating substrate opposite said plurality of pixel electrodes; and

a display medium layer sandwiched between said first and second insulating substrates, said display medium layer being light transmitting or not light transmitting in the volumes located between each said pixel electrode and said counter electrode according to the electrical potential difference applied across the display medium layer in each said volume;

further characterized in that:

at test signal line is connected to each of said data signal lines,
said test signal lines consist of recurrently formed
groupings of first, second, and third types of test signal
lines, each said test signal line type having an open end,
said first type of test signal line comprising electrical wiring
and defining a first diode of a first polarity located in
spaced relation to its open end;

said second type of test signal line comprising electrical
wiring used for data and defining a second
diode having a second polarity opposite to said first
polarity located in spaced relation to its open end;
and

said third type of test signal line comprising only
electrical wiring;

said test signal lines are so formed as to permit a short-circuiting bar for
supplying testing voltages to be put in contact with the test
signal lines at portions thereof spaced from the open ends
thereof by a distance smaller than the smaller of the
distances that said first and second diodes are spaced from
the open ends of the first and second type test signal lines
respectively; and

a variable voltage supply is connected to said transparent counter electrode for selectively supplying preselected voltages to said counter electrode according to said testing voltages applied to the data signal lines via the test signal lines while scanning signals are being sequentially applied to said scanning signal lines such that said display medium layer is light transmitting only in the volume between the ones of said pixel electrodes associated with data signal lines connected to one type of said test signal lines and said counter electrode when a selected one of said testing voltages is applied to said test lines by said short-circuiting bar in the absence of a short circuit between said pixel electrodes.

20. (New) A liquid crystal display device as claimed in claim 19,
wherein the test signal lines are so formed as to permit a short-circuiting bar for supplying testing voltages to be put in contact with the test signal lines at portions thereof nearer to the data signal lines than the first and second diodes.

21. (New) A liquid crystal display device as claimed in claim 17,
wherein the first, second, and third data signal lines types are data signal lines types associated with pixels that display red, green, and blue colors, respectively.

22. (New) A liquid crystal display device as claimed in claim 18,
wherein the first, second, and third data signal line types
are data signal line types associated with pixels that
display red, green, and blue colors, respectively.
23. (New) A liquid crystal display device as claimed in claim 19,
wherein the first, second, and third test signal line types
are test signal line types attached to data signal lines
associated with pixels for displaying red, green, and blue
colors, respectively.
24. (New) A liquid crystal display device as claimed in claim 20,
wherein the first, second, and third test signal line types
are test signal line types attached to data signal lines
associated with pixels for displaying red, green, and blue
colors, respectively.
25. (New) A method for testing a liquid crystal display device comprising:
a first insulating substrate;
a plurality of mutually parallel scanning signal lines and a
plurality of mutually parallel data signal lines, said
plurality of scanning signal lines and said plurality of data
signal lines being disposed perpendicularly relative to one
another on a surface of said first insulating substrate so as
to form a matrix-like array of intersections at each of which
one of said plurality of scanning signal lines and one of said
plurality of data signal lines cross;

a plurality of pixel electrodes, one of said plurality of pixel electrodes being located at each said intersection and each said pixel electrode being electrically connected to the scanning signal line and the data signal line forming said intersection by a transistor having its gate electrically connected to the scanning signal line, its source electrically connected to the data signal line and its drain electrically connected to the pixel electrode;

a second transparent insulating substrate disposed in spaced opposing relation to said first insulating substrate;

a transparent counter electrode, said transparent counter electrode being located on the surface of said second transparent insulating substrate facing said first insulating substrate opposite said plurality of pixel electrodes; and

a display medium layer sandwiched between said first and second insulating substrates, said display medium layer being light transmitting or not light transmitting in the volumes located between each said pixel electrode and said counter electrode according to the electrical potential difference applied across the display medium layer in each said volume;

further characterized in that:

said plurality of data signal lines consists of recurrently formed groupings of first, second, and third types of data signal lines, each said data signal line type having an open end, said first type of data signal line comprising electrical wiring used for data signal entry and defining a first diode of a first polarity located in spaced relation to its open end;

said second type of data signal line comprising electrical wiring used for data entry and defining a second diode having a second polarity opposite to said first polarity located in spaced relation to its open end; and

said third type of data signal line comprising only electrical wiring used for data entry; and

a variable voltage supply is connected to said transparent counter electrode;

wherein the method comprises the steps of:

putting a short-circuiting bar for supplying testing voltages in contact with the data signal lines at portions thereof spaced from the open ends thereof by a distance smaller than the smaller of the distances that said first and second diodes are spaced from the open ends of the first and second type data signal lines respectively; and

selectively supplying preselected voltages to said counter electrode according to said testing voltages applied to the data signal lines while scanning signals are being sequentially applied to said scanning signal lines such that said display medium layer is light transmitting only in the volume between the ones of said pixel electrodes associated with one type of said data signal lines and said counter electrode when a selected one of said testing voltages is applied to said display lines by said short-circuiting bar in the absence of a short circuit between said pixel electrodes

26. (New) A method for testing a liquid crystal display device as claimed in claim 25,
wherein the method includes the step of placing a short-circuiting bar for supplying testing voltages to be put in contact with the data signal lines at portions thereof farther from the open ends thereof than the largest of the distance said first diode or said second diode is spaced from the open end of its associated data signal line, and

the step of selectively supplying preselected voltages to said counter electrode according to said testing voltages applied to the data signal lines while scanning signals are being sequentially applied to said scanning signal lines such that said display medium layer is light transmitting only in the volume between the ones of said pixel electrodes associated with one type of said data signal lines and said counter electrode when a selected one of said testing voltages is applied to said display lines by said short-circuiting bar in the absence of a short circuit between said pixel electrodes.

27. (New) A method for testing a liquid crystal display device comprising:
- a first insulating substrate;
 - a plurality of mutually parallel scanning signal lines and a plurality of mutually parallel data signal lines, said plurality of scanning signal lines and said plurality of data signal lines being disposed perpendicularly relative to one another on a surface of said first insulating substrate so as to form a matrix-like array of intersections at each of which one of said plurality of scanning signal lines and one of said plurality of data signal lines cross;

a plurality of pixel electrodes, one of said plurality of pixel electrodes being located at each said intersection and each said pixel electrode being electrically connected to the scanning signal line and the data signal line forming said intersection by a transistor having its gate electrically connected to the scanning signal line, its source electrically connected to the data signal line and its drain electrically connected to the pixel electrode;

a second transparent insulating substrate disposed in spaced opposing relation to said first insulating substrate;

a transparent counter electrode, said transparent counter electrode being located on the surface of said second transparent insulating substrate facing said first insulating substrate opposite said plurality of pixel electrodes; and

a display medium layer sandwiched between said first and second insulating substrates, said display medium layer being light transmitting or not light transmitting in the volumes located between each said pixel electrode and said counter electrode according to the electrical potential difference applied across the display medium layer in each said volume;

further characterized in that:

at test signal line is connected to each of said data signal lines,
said test signal lines consist of recurrently formed
groupings of first, second, and third types of test signal
lines, each said test signal line type having an open end,
said first type of test signal line comprising electrical wiring
and defining a first diode of a first polarity located in
spaced relation to its open end;
said second type of test signal line comprising electrical
wiring used for data and defining a second
diode having a second polarity opposite to said first
polarity located in spaced relation to its open end;
and
said third type of test signal line comprising only
electrical wiring;
a variable voltage supply is connected to said transparent counter
electrode;

wherein the method includes the steps of

placing a short-circuiting bar for supplying testing voltages to be
in contact with the test signal lines at portions thereof spaced
from the open ends thereof by a distance smaller than the smaller
of the distances that said first and second diodes are spaced from
the open ends of the first and second type test signal lines
respectively; and

selectively supplying preselected voltages to said counter electrode according to said testing voltages applied to the data signal lines via the test signal lines while scanning signals are being sequentially applied to said scanning signal lines such that said display medium layer is light transmitting only in the volume between the ones of said pixel electrodes associated with data signal lines connected to one type of said test signal lines and said counter electrode when a selected one of said testing voltages is applied to said test lines by said short-circuiting bar in the absence of a short circuit between said pixel electrodes.

28. (New) A method for testing liquid crystal display device as claimed in claim 27,
wherein the test signal lines are so formed as to permit a short-circuiting bar for supplying testing voltages to be put in contact with the test signal lines at portions thereof nearer to the data signal lines than the first and second diodes.
29. (New) A method for testing a liquid crystal display device as claimed in claim 25,
wherein the first, second, and third data signal lines types are data signal lines types associated with pixels that display red, green, and blue colors, respectively.

30. (New) A method for testing a liquid crystal display device as claimed in claim 26,
wherein the first, second, and third data signal line types
are data signal line types associated with pixels that
display red, green, and blue colors, respectively.
31. (New) A method for testing a liquid crystal display device as claimed in claim 27,
wherein the first, second, and third test signal line types
are test signal line types attached to data signal lines
associated with pixels for displaying red, green, and blue
colors, respectively.
32. (New) A method for testing a liquid crystal display device as claimed in claim 28,
wherein the first, second, and third test signal line types
are test signal line types attached to data signal lines
associated with pixels for displaying red, green, and blue
colors, respectively.